



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Rabbani et al

Serial No. 09/439,594 Group Art Unit: 1637

Filed: June 12, 1999 Examiner: Joyce Tung

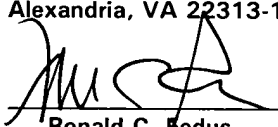
Title: DETECTING THE PRESENCE OF SPECIFIC TARGET NUCLEIC ACID SEQUENCES
THROUGH STEM-LOOP FORMATION

TRANSMITTAL
INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith is an Information Disclosure Statement which is being filed in accordance with 37 C.F.R. §§ 1.56 and 1.97-1.98. The items listed on Form PTO-1449, a copy of which is enclosed, may be deemed to be pertinent to the above-identified application and are made of record to assist the Patent and Trademark Office in its examination of this application. The Examiner is respectfully requested to fully consider the items and to independently ascertain their teaching.

EXPRESS MAIL CERTIFICATE	
"Express Mail" Label No.: <u>EL769578177US</u>	
Deposit Date:	<u>December 31, 2003</u>
I hereby certify that this paper and the attachments herein are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.110 on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.	
 Ronald C. Fedus Reg. Exhibit 32,567	<u>Dec 31 2003</u> Date

1. ☐ For each of the following items listed on the enclosed copy of Form PTO-1449 that is not in the English language, an English language translation of that item or a portion thereof or a concise explanation of the relevance of that item is enclosed:
2. ☐ For each of the following items listed on the enclosed copy of form PTO-1449 that is not in the English language, a concise explanation of the relevance of that item is incorporated in the specification of the above-identified application.
3. ☐ Any copy of the items on the enclosed copy of Form PTO-1449 that is not enclosed with this Information Disclosure Statement was previously cited by or submitted to the Patent and Trademark Office in the prior ☐ Divisional or ☐ Continuation-In-Part application under 37 C.F.R. §1.60, U.S. Serial No. _____, filed _____.
4. ☐ No fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with:
- ☐ 37 C.F.R. §1.97(b)(1), within three months of the filing date of the above-identified application.
 - ☐ 37 C.F.R. §1.97(b)(2), within three months of the date of entry into the national stage as set forth in §1.491 in an international application.
 - ☐ 37 C.F.R. §1.97(b)(3), before the mailing date of a first Office action on the merits.
5. ☐ No fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with 37 C.F.R. §1.97(c), after the period specified in paragraph 4 above but before the mailing date of a final action or a Notice of Allowance (where there has been no prior final action), and is accompanied by one of the certifications pursuant to 37 C.F.R. §1.97(e) set forth in paragraph 9 below.
6. ☒ A fee is due under 37 C.F.R. §1.17(p) for this Information Disclosure Statement since it is being filed in compliance with 37 C.F.R. §1.97(c), after the period specified in paragraph 4 above but before the mailing date of a final action or a notice of allowance (where there has been no prior final action):
- ☐ A check in the amount of \$180.00 is enclosed in payment of the fee.

☒ Charge the fee to Deposit Account No. 05-1135, Order No. **Enz-58(D1)**. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

7. ☐ A fee is due under 37 C.F.R. §1.17(i)(1) for this Information Disclosure Statement since it is being filed in compliance with 37 C.F.R. §1.97(d), after the mailing date of a final action or a notice of allowance, whichever comes first, but before payment of the issue fee, and is accompanied by:
- a. one of the certification pursuant to 37 C.F.R. §1.97(e) set forth in paragraph 9 below; and
 - b. the attached petition requesting consideration of this Information Disclosure Statement; and
 - c. the fee due under 37 C.F.R. §1.17(i)(1) which is paid as set forth in paragraph 10 below.
8. ☐ A fee is due under 37 C.F.R. §1.17(i)(1) for this Information Disclosure Statement since it is being filed in compliance with:
- a. ☐ 37 C.F.R. §1.313(b)(3), after the issue fee has been paid and information cited in this Information Disclosure Statement may render at least one claim unpatentable and is accompanied by the attached Petition To Withdraw Application From Issue;
 - b. ☐ 37 C.F.R. §1.313(b)(5), after the issue fee has been paid and information cited in this Information Disclosure Statement is to be considered in a Continuation application upon abandonment of the instant application and is accompanied by the attached Petition To Withdraw Application From Issue.
 - c. ☐ The fee due under 37 C.F.R. §1.17(i)(1) is paid as set forth in paragraph 10 below.
9. ☒ I hereby certify that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.
- ☐ I hereby certify that no item of information in the Information Disclosure Statement filed herewith was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in §1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Enz-58(D1)

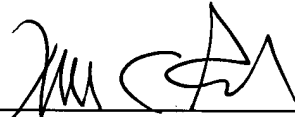
10. [] A check in the amount of \$180.00 is enclosed in payment of the fee due under 37 C.F.R. §1.17(i)(1).

If necessary,
[X] Charge the fee under 37 C.F.R. §1.17(i)(1) to Deposit Account No. 05-1135. Order No. **Enz-58(D1)**. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

[x] The Commissioner is hereby authorized to charge any additional fees which may be required for this Information Disclosure Statement, or credit any overpayment to Deposit Account No. 05-1135. A DUPLICATE COPY OF THIS SHEET IS ATTACHED.

Respectfully submitted,

Dated: December 31, 2003

By: 
Ronald C. Fedus
Registration No. 32,567

Mailing Address:

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Enz-58(D1)



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Rabbani et al

Serial No. 09/439,594

Filed: June 12, 1999

Title: DETECTING THE PRESENCE OF SPECIFIC
TARGET NUCLEIC ACID SEQUENCES
THROUGH STEM-LOOP FORMATION

Group Art Unit: 1637

Examiner: Joyce Tung

527 Madison Avenue, 9th Floor
New York, New York 10022
December 31, 2003

FILED VIA EXPRESS MAIL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

FOURTH INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. §§1.56 & 1.971.98

Dear Sirs:

Pursuant to the provisions of 37 C.F.R. §1.971.98, and in full compliance with their duty of disclosure under 37 C.F.R. §1.56, Applicants, through their attorney, are bringing the following eight (8) documents to the attention of the U.S. Patent and Trademark Office and the Examiner handling their above-identified application:

Rabbani et al

Serial No.: 09/439,594

Filed: June 12, 1999

Page 2 [Information Disclosure Statement

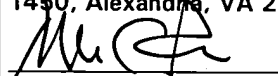
– December 31, 2003]

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Ronald C. Fedus
Reg. Exhibit 32,567

Dec 31 2003

Date

1. Barstow, D.A., et al., International Patent Application No. WO 92/00989, published January 23, 1992 [Exhibit 1];
2. Brown, D., et al., International Patent Application No. WO 98/43991, published October 8, 1998 [Exhibit 2];
3. Grein, T., et al., "3 Deaza and 7 Deazapurines: duplex stability of oligonucleotides containing modified adenine or guanine bases," Bioorganic & Medicinal Chemistry Letters 4:971-976 (1994) [Exhibit 3];
4. Khan, S.H., et al., International Patent Application No. WO 98/06732, published February 19, 1998 [Exhibit 4];
5. Reiss, E., et al., German Democratic Republic Patent Application No. DD 265 429 A1, filed September 30, 1987 [Exhibit 5];
6. Sagi, J., et al., "Base-modified oligodeoxynucleotides. I. effect of 5-alkyl, 5-(1-alkenyl) and 5-(1-alkynyl) substitution of the pyrimidines on duplex stability and hydrophobicity," Tetrahedron Letters 34:2191-2194 (1993) [Exhibit 6];
7. Sanghvi, Y.S., "Heterocyclic Base Modifications in Nucleic Acids and their Applications in Antisense Oligonucleotides," Chapter 15 (pages 273-288) of *Antisense Research and Applications*, CRC Press, UK (1993) [Exhibit 7];
8. Sowers, L.C., et al., "Equilibrium between a Wobble and Ionized Base Pair Formed between Fluorouracil and Guanine in DNA as Studied by Proton and Fluorine NMR," J. Bio. Chem. 263:14794-14801 (1988) [Exhibit 8];

The eight (8) foregoing references (numbers 1-8) were cited in the European Search Report dated December 11, 2003.

Foregoing reference number 5 is not in English. A copy of the English translation of the abstract is attached with the foreign language reference as Exhibit 5.

A completed Form PTO-1449 listing the 8 above-submitted documents is also attached hereto as Exhibit 9.

By this voluntary citation of art, Applicants and their attorney are requesting that the documents be made of record in the present application.

The above citation of documents is not a representation that these documents constitute a complete or exhaustive listing, nor that the above listing necessarily includes the closest or most relevant documents, nor are these documents necessarily a complete listing of all documents known to Applicants or their attorney. It is simply a voluntary citation of documents made in good faith, which is not intended to serve in any way as a substitute for the Examiner's own search.

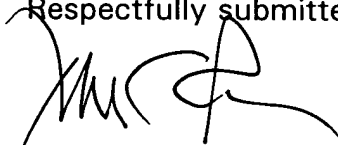
In view of the general and specific features described and claimed in the present application, Applicants respectfully submit that the present invention is neither disclosed nor suggested by the documents referred to above and is thus patentably distinct thereover. Furthermore, Applicants do not believe, and do not submit, by the citation of these references, that these documents, either by themselves or in combination with other documents, render the invention *prima facie* obvious under the duty of disclosure rules.

Applicants respectfully request that the Examiner make the above-submitted documents of record in the instant application. Applicants further request that the Examiner consider these documents as any of them may relate to the instant application.

Rabbani et al
Serial No.: 09/439,594
Filed: June 12, 1999
Page 5 [Information Disclosure Statement
– December 31, 2003]

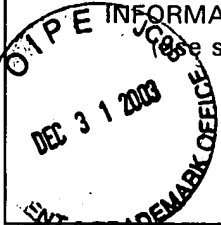
The fee under 37 C.F.R. §1.17(p) for filing this Information Disclosure Statement is \$180.00. The Patent and Trademark Office is hereby authorized to charge the amount of this fee (and any other fees in connection with this IDS) to Deposit Account No. 05-1135, or to credit any overpayment thereto.

Respectfully submitted,



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Registration No. 32,567
Natalie Bogdanos
Registration No. 51,480
Attorneys for Applicants

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Form PTO-1449 U.S. Department of Commerce (REV. 8-83) Patent and Trademark Office 	Atty. Docket No. ENZ-58(D1)	Serial No. 09/439,594
	Applicants: Rabbani, et al	
	Filed: June 12, 1999	Group: 1637

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPRO- PRIATE

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	TRAN- SLATION YES NO
	WO 9 2 0 0 9 8 9		Barstow, et al			
	WO 9 8 4 3 9 9 1		Brown et al			
	WO 9 8 0 6 7 3 2		Khan et al			
	DD 2 6 5 4 2 9	9/30/87	Reiss et al			

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	Grein, T., et al., "3 Deaza and 7 Deazapurines: duplex stability of oligonucleotides containing modified adenine or guanine bases," <u>Bioorganic & Medicinal Chemistry Letters</u> 4:971-976 (1994)
	Sagi, J., et al., "Base-modified oligodeoxynucleotides. I. effect of 5-alkyl, 5-(1-alkenyl) and 5-(1-alkynyl) substitution of the pyrimidines on duplex stability and hydrophobicity," <u>Tetrahedron Letters</u> 34:2191-2194 (1993)
	Sanghvi, Y.S., "Heterocyclic Base Modifications in Nucleic Acids and their Applications in Antisense Oligonucleotides," Chapter 15 (pages 273-288) of <u>Antisense Research and Applications</u> , CRC Press, UK (1993)
	Sowers, L.C., et al., "Equilibrium between a Wobble and Ionized Base Pair Formed between Fluorouracil and Guanine in DNA as Studied by Proton and Fluorine NMR," <u>J. Bio. Chem.</u> 263:14794-14801 (1988)

EXAMINER	DATE CONSIDERED
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	